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TECHNICAL REPORT 89-004

**TOWARD A DEFINITION
OF TEAMWORK:
AN ANALYSIS OF CRITICAL
TEAM BEHAVIORS**

MARCH 1989

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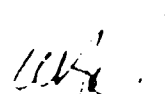
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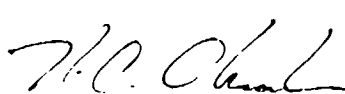
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<p>The findings reported here represent a detailed behavioral analysis of data collected from Naval tactical teams. They are part of a continuing effort to document the processes involved in <u>Team Evolution</u> and <u>Maturation</u> (TEAM).</p> <p>The primary objectives of this research were to answer the following questions: (1) Do successful teams demonstrate a specific set of behaviors that are related to performance during training? (2) Do more and less effective teams display different types of behaviors during training? (3) Can the behavioral profiles developed by Glickman, et al., (1987; Morgan, et al. 1986) be enhanced by identifying specific behaviors associated with successful performance? (4) What support do the detailed</p>			
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A series of analyses were conducted on behavioral data from 13 tactical teams in order to answer these questions. Frequencies of behaviors recorded with a Critical Team Behaviors Form were compared in order to identify behavioral changes (across the training phases) that distinguish more effective teams from less effective teams. Bivariate correlational analyses between the behavioral frequencies and final examination score, and significance tests of the behaviors displayed by the more or less effective teams, were conducted to determine the behaviors which differentiate more effective teams from less effective teams.

In response to the six primary objectives of this investigation, the results suggest that (1) it is possible to identify sets of team behaviors that are frequently observed by effective teams in training, (2) more and less effective teams can be discriminated between each other based on sets of team behaviors, (3) previously developed behavioral profiles are enhanced by identifying the specific components of teamwork, (4) the behaviors identified in this investigation provide additional understanding to team development, (5) various team behavior sets are being identified as predictors of team success, and (6) teamwork can be defined in terms of a team's ability to display skills involving error identification and resolution, coordinated information exchange and intramember reinforcement.

Based on these results, it is suggested that the behavioral constituents for optimum performance in a team environment have begun to emerge. Subsequent research should analyze behavioral data in other task situations so as to extend and test the generality of the current behavioral definition of teamwork.

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EXECUTIVE SUMMARY

The findings reported here represent a detailed behavioral analysis of data collected from Navy tactical teams. They are part of a continuing effort to document the processes involved in Team Evolution and Maturation (TEAM).

OBJECTIVES

The primary objectives of this research were to answer the following questions: (1) Do successful teams demonstrate a specific set of behaviors that are related to performance during training? (2) Do more and less effective teams display different types of behaviors during training? (3) Can the behavioral profiles developed by Glickman, et al. (1987; Morgan, et al. 1986) be enhanced by identifying specific behaviors associated with successful performance? (4) What support do the detailed behavioral analyses provide for the previously posited model of Team Evolution and Maturation developed by Morgan, et al. (1986)? (5) Can the results of the behavioral analyses be used to develop indicators of a team's potential for success during training? (6) Can teamwork be defined in terms of the pattern of interaction/communication behaviors exhibited by successful teams?

APPROACH

A series of analyses were conducted on behavioral data from 13 tactical teams in order to answer these questions. Frequencies of behaviors recorded with a Critical Team Behaviors Form were compared in order to identify behavioral changes (across the training phases) that distinguish more effective teams from less effective teams. Bivariate correlational analyses between the behavioral frequencies and final examination scores and significance tests of the behaviors displayed by the more and less effective teams were conducted to determine the behaviors which differentiate more effective teams from less effective teams.

RESULTS

In response to the six primary objectives of this investigation, the results suggest that (1) it is possible to identify sets of team behaviors that are frequently observed by effective teams in training, (2) more and less effective teams can be discriminated between each other based on sets of team behaviors, (3) previously developed behavioral profiles are enhanced by identifying the specific components of teamwork, (4) the behaviors identified in this investigation provide additional

understanding to team development, (5) various team behavior sets are being identified as predictors of team success, and (6) teamwork can be defined in terms of a team's ability to display skills involving error identification and resolution, coordinated information exchange and intramember reinforcement.

CONCLUSIONS

Based on these results, it is suggested that the behavioral constituents for optimum performance in a team environment have begun to emerge. Subsequent research should analyze behavioral data in other task situations so as to extend and to test the generality of the current behavioral definition of teamwork.

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"Relatively little research has been devoted to carefully examining such issues as how team members interact with each other; whether such interactions vary over time, with what situation, and/or with team experience; what meaning can be assigned to such terms as teamwork, coordination, and cooperation; and what role is played by the leader in team behavior" (Dyer, 1984, p. 294).

INTRODUCTION

As suggested by Dyer (1984; quoted above) very little is actually known about teamwork. Although some Navy tasks are performed by only one individual, the vast majority of work is performed by crews, groups, teams, and units. Navy operations depend upon the integrated performances of teams of individuals who must coordinate their activities in order to contribute to decision making, unit performance, and operational readiness. Thus, it is of vital interest to the Navy to investigate the factors related to team performance and training in order to both understand and improve team performance.

Research performed in a variety of settings over the past thirty years has resulted in the development of models and theories that provide some basis for understanding and predicting team performance (Denson, 1981; Dyer, 1984; Nieva, Fleishman, & Rieck, 1978). However, there are problems in the current body of research regarding the absence of integrative conceptualizations, inadequate measurement systems, and incomplete knowledge of how teams develop over time (Salas, Blaiwes, Reynolds, Glickman, & Morgan, 1985). These problems limit the applicability of the research findings with regard to the development of interventions aimed at improving team performance.

In order to address these problems directly, recent researchers (Glickman, Zimmer, Montero, Guerette, Campbell, Morgan, & Salas, 1987; Guerette, Miller, Glickman, Morgan, & Salas, 1987; McIntyre, Morgan, Salas, & Glickman, 1988; Morgan, Glickman, Woodard, Blaiwes, & Salas, 1986) have investigated the evolution and maturation of Combat Information Center (CIC) teams undergoing training at various commands in Norfolk, Virginia. These teams are responsible for information processing and decision making functions related to a variety of gunfire support missions (Goldin & Thorndyke, 1980), and successful performance requires that they engage in a considerable amount of teamwork.

The primary thrust of the current investigation is to extend

the analysis of behavioral data collected by Glickman et al. (1987). In their research, Glickman et al. (1987) conducted an initial analysis of the behaviors that were observed for successful teams during training. Efforts were made to (1) examine behavioral changes over time for teams, (2) develop behavioral profiles that distinguish between "more" and "less" effective teams, and (3) provide a behavioral definition of team work in successful teams.

The current analyses are based on the hypothesis that teams which successfully complete training exhibit specific interaction, communication, and coordination behaviors that enhance their performance. It was further posited that teams obtaining the highest scores on the training program's final examination (i.e., the more effective teams) will demonstrate a different behavioral pattern than the one exhibited by teams that scored lower on the final examination (i.e., the less effective teams). The results of the current analyses begin to provide behavioral indicators of effective teamwork based on specific team interaction and communication patterns. These behavioral patterns provide an important basis for developing ways to enhance the training of teamwork skills required for effective mission performance.

ORGANIZATION OF THE REPORT

The introductory section of this report provides an overview of the research program which preceded and stimulated the current effort. This includes a brief discussion of the previous results that are relevant to this investigation and the types of questions which stimulated the present research. The rationale and design of the present effort is also discussed. The method section describes the measurement device and procedures used to collect and to analyze the data. The results section presents an overview of the data and three behavioral profiles; profiles of the behaviors that are common to all teams, and also of the behaviors that are unique to the "more" and "less" effective teams. This section ends with a summary which highlights the most important findings. The discussion section provides additional insights concerning the implications of the current findings as they relate to the theoretical and conceptual framework, the measurement device, and the analysis procedures employed in the current investigation. In addition, the results are interpreted to provide a behavioral definition of successful teamwork. Finally, the findings are discussed in terms of application to team performance and training system design in the Navy.

REVIEW OF PRIOR RESEARCH

In 1985, the Naval Training Systems Center, Orlando, Florida, initiated a three year investigation of the processes of Team Evolution And Maturation. The initial phase of this effort was designed to document "the changes that occur as team members learn about their tasks, each other, and the environmental demands of the training scenarios of the Naval Gunfire Support (NGFS) Department, Naval Amphibious School, Little Creek" (Morgan et al., 1986). This research was undertaken with the expectation of achieving two major objectives (as stated by Morgan et al., 1986):

- (1) the systematic identification of team skills, tasks, behaviors, and conditions that influence team training instruction and design; and
- (2) the development of measures of these variables that will provide a base of knowledge for designing and using interventions to enhance team training programs.

Assessment tools were developed, refined, and used to record the behaviors exhibited by teams undergoing training. The previous findings of particular relevance to the current investigation may be summarized as follows (other details of the investigation are reported by Glickman et al., 1987):

- (1) It is possible to observe and record changes in team behaviors over time using the methodologies developed by the researchers.
- (2) It is possible to discriminate more effective teams from less effective teams using the procedures developed by the researchers.
- (3) Team leaders of more effective teams appear to act differently than leaders of less effective teams in terms of the types and frequency of the behaviors that they exhibit.

PURPOSE OF CURRENT ANALYSIS

Prior analyses (Glickman et al., 1987) of critical team behaviors data focused on efforts to identify variations in the frequency of behaviors across different behavioral dimensions (communication, cooperation, team spirit & morale, giving suggestions or criticism, acceptance of suggestions or criticism, coordination, adaptability, infrequent incidents, and additional incidents) and behavioral type (effective and ineffective). In

comparison, the current investigation concentrated on occurrences of specific behaviors (e.g. "member who needed assistance asked for help") during training. Thus, the current analyses represent a more microscopic examination of the data.

Based on the previous research findings, several questions were generated to guide this investigation. These questions include:

- (1) Do successful teams demonstrate a specific set of behaviors that are related to performance during training?
- (2) Do more effective and less effective teams display different types of specific behaviors during training?
- (3) Can the behavioral profiles developed by Glickman et al. (1987; Morgan et al., 1986) be further enhanced by identifying specific behaviors associated with successful performance?
- (4) What support do the detailed behavioral analyses provide for the previously posited model of Team Evolution and Maturation developed by Morgan et al. (1986)?
- (5) Can the results of the behavioral analyses be used to develop indicators of a team's potential for success during training?
- (6) Can teamwork be defined in terms of the pattern of interactive/communication behaviors exhibited by successful teams?

The ultimate goal of the research reported here is to enhance the design of future team training systems by providing a greater understanding of what constitutes teamwork; what knowledges, skills, and abilities are required for effective teamwork; and what training strategies can be employed to enhance team performance.

METHOD

TACTICAL TEAM TRAINING OVERVIEW

The tactical team training program for which the current data were collected requires between four and five days, depending upon the competencies and motivations of the team. The training occurs in distinct phases (including practice and examination sessions). In each of the five phases in this sample (Basics, Pre-Midterm, Midterm, Post-Midterm, and Final), the teams perform a number of simulated missions requiring a variety of skills. The exercises become increasingly more complex, in terms of mission difficulty and the levels of interdependency and coordination required among team members, as the training progresses.

A typical training session includes: (a) a lecture concerning the objectives of the exercises that were to be practiced; (b) 3 1/2 to 4 hours of practice performing the exercises; and (c) a debrief following completion of the session. A detailed description of the various exercises and sessions is provided in Guerette, Miller, Glickman, Morgan, & Salas (1988; see also COMNAVSURFLANTINST 3570.2C, 1982; Morgan, et al., 1986)

The relative performances of teams were assessed in the examination phases of training. These phases consist of standard simulator exercises which are graded by the instructor using a standardized scoring protocol (a summary of the scoring protocol is given in Appendix H of Glickman, et al., 1987). The maximum score on these exercises is 100 points and the minimum passing score is 70.

CRITICAL TEAM BEHAVIORS FORM

A critical incident approach (Flanagan, 1954; Glickman & Vallance, 1958) was used to develop the Critical Team Behaviors Form (CTBF). During the development of the CTBF, the research staff interviewed instructors at Naval Gunfire Support School (NGFS), reviewed NGFS training materials, and observed NGFS training exercises in an effort to identify behaviors linked to team success or failure during training. The behaviors identified were categorized into seven behavioral dimensions (communication, cooperation, team spirit & morale, giving suggestions & criticism, accepting suggestions & criticism, coordination, and adaptability) and a category of infrequently occurring behaviors. The behaviors were formatted into a checklist that instructors used to report the occurrences of the specific behaviors. A more detailed description of the procedures used to develop the CTBF

is provided by Morgan et al. (1986; see also Glickman, et al. 1987).

The CTBF contains a total of 68 behavioral items, of which one-half are "effective" and one-half are "ineffective" behaviors; that is, half of the behaviors were reported by instructors to be instrumental in the development of successful teams and half were judged to be behaviors common to unsuccessful teams. The form is ten pages in length. It required approximately 45 minutes for the instructor to complete the form. The cover sheet contains the instructions and a table of contents, as well as questions regarding the ship, the training session (day of training, morning or afternoon), and the training exercise just completed. Each of the following seven pages contains a single dimension with a list of critical team behaviors related to that dimension. Another page contains a list of infrequently occurring behaviors, and the last page provides space for listing important behaviors that are not covered in the preceding pages of the form. A sample copy of the form is given in Appendix A.

DATA COLLECTION PROCEDURES

In completing the CTBF, the instructors observed a team during a scheduled training session, reviewed a list of effective and ineffective behaviors for each of seven behavioral dimensions, and then marked the form to indicate which of the listed behaviors occurred during the just completed session of training. They also identified the initiator(s) and the recipient(s) of each reported behavior. Data collection began on Monday afternoon and was finished immediately after the team completed its final examination, usually on Thursday afternoon or Friday morning.

A member of the research staff distributed the CTBF to the instructors and collected the forms as they were completed. As training progressed, researchers coordinated their efforts with those of the instructors so that a member of the research staff could be available at the end of each morning and afternoon session in order to administer the CTBF. The CTBF was administered at the end of each morning and afternoon training session, so as not to interfere with the normal flow of training. This schedule allowed data to be collected at least once during each of the five (basics through final) simulator phases of training. Since a greater amount of time was usually allotted to the pre-midterm phase, data often were collected more than once during that phase. Following the data collection for the final phase of training, the instructors and trainees were thanked for their participation in the data collection efforts and all of

their final questions concerning the investigation were answered.

CRITICAL BEHAVIOR DATA SET

The analyses in this report focus on critical team behaviors data for teams previously studied by Glickman et al. (1987). The nature of this current investigation required using a set of thirteen teams for some of the analyses and only the three more effective and three less effective teams for other portions of the analyses. The more effective teams in these analyses (Ship Numbers 3, 4, & 6) obtained the three highest scores on the NGFS final examination, while the less effective teams (Ship Numbers 10, 5, & 9) obtained the three lowest scores on the final examination. The final examination scores for the more and less effective teams are given in Table 1.

Table 1

Final Examination Scores for More Effective and
Less Effective Teams

Performance Category	Ship Number	Final Score	Category Mean
More Effective	3	98	
	4	96	96.0
	6	94	
Less Effective	10	80	
	5	78	78.7
	9	78	

As presented by Glickman, et al. (1987), the final examination scores of the full sample of 13 teams correlated significantly with similar scores from subsequent qualification exercises on a live-fire range ($r(8) = .75, p < .05$). Thus, the final examination scores are interpreted to provide a meaningful representation of performance in the field and a valid criterion for dividing the teams into groups containing the more and less effective teams.

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RESULTS

Using the Critical Team Behaviors Form, the instructors recorded a total of 1102 critical behaviors for the 13 teams (84 behaviors/team). Of these, 832 (75%) were effective and 270 (25%) were ineffective. Since the Critical Team Behaviors Form actually lists a total of 68 behaviors, of which 34 (50%) are effective and 34 (50%) are ineffective, there seems to be a tendency for instructors to record a larger number of effective behaviors as compared to ineffective behaviors.

The instructors recorded 589 behaviors for the three more and three less effective teams, or 53.4% of the total number of behaviors observed for the thirteen teams. The more effective teams displayed 354 behaviors, while the less effective teams exhibited 235 behaviors (32.1% and 21.3% of the total number of behaviors, respectively).

As suggested in the method section, the Critical Team Behaviors data were analyzed in two ways. First, analyses were conducted on the data for the entire set of thirteen teams. This was performed in order to understand better the specific types of behaviors that effective (successfully passing the final examination) teams demonstrate. Second, analyses were conducted on the critical behaviors data for the three more effective and the three less effective teams. This set of analyses focused on the specific behaviors that were indicative of high and low performance for successful teams. Identifying behaviors that discriminate between relative performance of teams can provide possible insight for training less effective teams to be more effective.

The first objective of this investigation was to demonstrate the existence of a specific set of behaviors for successful teams during training. In order to identify this set of behaviors the data were subjected to a number of analyses. The first set of analyses involved identifying those behaviors that were most frequently observed for the teams during training. Frequencies were calculated for the 68 critical behaviors on the CTBF. Table 2 gives the behaviors with the ten highest frequencies. The frequencies of these behaviors (455) accounted for 41.3% of the total number of behaviors observed (1102). Nine of the eleven behaviors (81.8%) were effective and two of the behaviors (18.2%) were ineffective behaviors.

The most frequently observed effective behaviors include indications that team members assisted each other in a variety of

Table 2

Behaviors with Largest Frequencies Observed
for Teams (N = 13) During Training

Behavior	Frequency
Prompted another member on what he had to do next.	56
Helped another member who was having difficulty with a task.	52
Directed members on what to do next.	50
Communicated information out of order. (I)	46
Coordinated gathering of information in an effective manner.	42
Checked with other team members when uncertain about what to do next.	39
Made positive statements to motivate the team.	37
Called attention to a mistake made by another without being negative.	36
Assisted another member when the latter had a difficult task to perform.	33
Used improper terminology when communicating information. (I)	32
When finished one task, member began working on another task.	32

I = Ineffective Behaviors; the remainder were effective behaviors.

ways. For example, team members demonstrated prompting and directing behaviors on what was required next, actively helped others by stepping-in, and also performed a portion of another team members job when the team member was experiencing difficulty or had a difficult job to perform. Team members were also observed assisting each other by identifying mistakes without

being negative and asking for assistance when they were uncertain of what to do next and making positive statements to motivate each other.

The remaining two effective behaviors indicate that team members gather information and have a number of tasks to complete while performing their jobs. The first behavior indicates that the CIC team members are involved in the accumulation of information from the appropriate sources to aid in the decision making process. The second behavior suggests that team members complete one task and then move on to the next task without hesitation.

The two most frequently observed ineffective behaviors accounted for 28.3% of the total number of ineffective behaviors observed. The frequencies of these two behaviors indicate that teams experience some difficulty with regard to the proper order for communication patterns and proper terminology.

In addition to investigating the CTBF behaviors that were the most frequently observed, an analysis was also conducted to identify those behaviors that were never observed. The nine behaviors listed in Table 3 were not displayed by any of the thirteen teams during training. Of these behaviors eight (88.9%) were ineffective, while only one (11.1%) was effective.

The behaviors that were not observed in these teams are important for two reasons. First, the behaviors may be used as indicators that a team is experiencing difficulty and that corrective action is required by the instructor. Second, since these behaviors were rarely observed, they can be considered for potential removal from the CTBF in order to shorten the length of the form.

The ineffective behaviors in Table 3 involve a breakdown between members. The presence of these behaviors may inhibit a team from successfully completing training. For example, if subgroups are formed within the team or if a member is ridiculed for making a mistake, the entire team may break down. The behaviors could inhibit team performance by members not actively monitoring each other, not asking for or giving each other assistance, and not working as a coordinated unit.

It is interesting to note that no instructor reported that any team member was verbally reprimanded. The absence of this behavior could be due to either a lack of reprimands given during training or to a reluctance of the instructors to document that a verbal reprimand took place or to the fact that the behaviors were not explicit enough for observation (e.g., personality conflicts).

Table 3
Behaviors Not Exhibited By Any Team
During Training

-
- * Formed sub-groups or cliques.(I)
 - * Allowed personality conflicts to interfere with work.(I)
 - * Gave unsolicited and unnecessary advice to another member.(I)
 - * Verbally reprimanded another member when this was necessary.
 - * Told other members to worry about their own jobs and let him alone.(I)
 - * Argued with another member who said he had made a mistake.(I)
 - * Indicated that he knows his job and shouldn't have worry about someone else's job.(I)
 - * While waiting for information from another member, began to harass the other member.(I)
 - * Ridiculed a member who had made a mistake.(I)
-

I = Ineffective Behaviors; the remainder were effective behaviors.

CORRELATIONAL ANALYSIS

The second objective of this investigation was the identification of specific behaviors that are related to measures of team performance. Although several measures of team performance were available to use in the analyses, final examination scores were determined to be the best candidate for two reasons. First, the final examination was scored using objective measures (i.e., accuracy of salvo, time to complete task, and level of salvo correction required), as compared to the measures that were primarily subjective (i.e., team member

satisfaction). Second, as previously reported, the final examination scores during simulated training exercises correlated with subsequent live-range qualification scores. Third, the final examination scores demonstrated a large degree of variability across the range of scores, as compared to the other measures of team performance.

Correlation coefficients were calculated in order to examine the relationship between final examination scores and the frequencies of the critical behaviors. Since the data available were relatively continuous (ie., there was no upper limit to the number of times a behavior may have been observed), it was decided that the continuous frequencies of the individual behaviors should be converted into a discrete measure by grouping scores. Specifically, the frequencies were classified according to the relative number of observations for the behaviors. The behaviors were coded as: 1 = those occurring most frequently (range = 3 to 8 observations), 2 = those occurring moderately (range = 1 to 2 observations), and 3 = those occurring least frequently (range = 0 observations). This coding was done in an effort to provide similar behavioral frequency ranges and to enhance the understanding of the results from the data analyses.

Table 4 lists the ten behaviors found to be significantly correlated with final examination scores. Eight of the behaviors (80%) were positively correlated and two of the behaviors (20%) were negatively correlated. The positive correlations indicate that higher frequencies of these behaviors are related to higher final examination scores. In contrast, the negative correlations indicate that lower frequencies of these behaviors are related to higher final examination scores.

The results of the bivariate correlations provide insight into the types of behaviors that are related to team performance. Although the analyses identify specific behaviors, it is possible to cluster the behaviors into several types. First, several of the behaviors suggest that team member praise and morale building is related to successful team performance, while making negative comments is related to poor team performance. Second, a number of behaviors involve members identifying their own or others mistakes and/or providing procedures or practice focused at identifying or correcting errors. Finally, one behavior suggests that the communication process, in terms of effective gathering and coordination of information, is related to higher final examination scores. In summary, these results suggest that a variety of team interaction, error identification, and communication behaviors are related to team performance.

Table 4

Significant Correlations of Behavior
Frequencies with Final Exam Scores

Behavior	Correlation*
Helped another member who was having difficulty with a task.	.67
Made positive statements to motivate the team.	.54
Assisted another member when the latter had a difficult task to perform.	.49
Praised another member for doing well on a task.	.59
Made negative comments about the team or training. (I)	-.70
Suggested to another that he recheck his work so that he could find his own mistake.	.54
Raised his voice when correcting another member. (I)	-.60
Thanked another member for catching his mistake.	.60
Coordinated gathering of information in an effective manner.	.50
Provided suggestions on the best way to locate an error.	.49
* Critical Value (1-TAIL, $p \leq .05$) = $\pm .48$	
N = 13	
I= Ineffective Behaviors, the remainder were effective behaviors.	

It should be noted that the limited size of the sample (N=13) lessens the relative strength of the correlational results. The researchers acknowledge that larger sample sizes are certainly preferred and that some caution regarding the direct applicability is warranted. Efforts are currently underway to test these results with additional sites (McIntyre, et al., 1988).

DESCRIPTIVE STATISTICS FOR THE CORRELATED BEHAVIORS

The third objective of this investigation involved enhancing the behavioral profiles developed by Glickman et al. (1987). This was accomplished through a variety of analyses of specific behaviors associated with successful team performance. First, in order to better understand the relationship between the frequencies of the significant behaviors and the relative effectiveness of the teams, the means and standard deviations were calculated separately for behaviors exhibited by the three more and three less effective teams. Second, in an effort to examine the possible evolution and maturation of behaviors related to team performance during training, the number of teams exhibiting a specific behavior in a given phase was examined. Third, in order to determine whether team members in more and less effective teams initiated different percentages of behaviors, the members (leaders and other members) of the team which initiated the significant behaviors were analyzed. Finally, t-tests were conducted on the significant behaviors to identify the behaviors which in terms of frequency discriminate between more and less effective teams.

The first additional analyses of the significant behaviors involved calculating the means and standard deviations for the three more and three less effective teams. Table 5 provides the descriptive statistics for each group of teams.

The data in Table 5 provide additional insight to the specific behavioral differences observed for the teams. In particular, the more effective teams demonstrated higher frequencies of behaviors involving coordination/communication skills, error identification/correction skills, and interpersonal skills than did the less effective teams.

The coordination/communication skills identified in the correlational analyses involved team members effectively coordinating the gathering of information. The behaviors involved with effective gathering of information include ensuring the accurate and timely transmission, collection, and reception of relevant information.

Table 5

Means and Standard Deviations for Behaviors Correlating
With Final Exam Scores For More and Less Effective Teams

Behavior	More Effective Teams		Less Effective Teams	
	Mean	S.D.	Mean	S.D.
Helped another member who was having difficulty with a task.	4.33	1.15	2.67	3.79
Made positive statements to motivate the team.	3.67	2.52	1.67	1.53
Assisted another member when the latter had a difficult task to perform.	3.00	1.73	2.00	3.47
Praised another member for doing well on a task.	3.67	1.53	.33	.58
Made negative comments about the team or training.	.00	.00	.33	.58
Suggested to another that he recheck his work so that he could find his own mistake.	2.67	.58	.33	.58
Raised his voice when correcting another member.	.00	.00	.67	.58
Thanked another member for catching his mistake.	4.00	2.00	.67	.58
Coordinated gathering of information in an effective manner.	5.00	3.00	2.33	2.52
Provided suggestions on the best way to locate an error.	2.00	1.00	.33	.58

The error identification/correction skills consist of members monitoring their own or others' performance, identification of errors/problems, and the resolution of the errors/problems. For example, if a team member is having difficulty with a task or sees an incorrect procedure being used by another member of the team, it is important for the member to take corrective steps to resolve the situation. It is interesting to note that team members suggested to another to recheck their work to find their own mistakes and/or provided suggestions for the best way to locate an error. These behaviors imply it is also important for members to gain experience in identifying and correcting their own mistakes, in addition to having other members step-in and provide assistance.

The interpersonal skills included: members making motivating statements, members thanking others for catching mistakes, and members praising each other for doing well on a task. These behaviors suggest that an environment exists within the team where member exchange reinforcing and team building statements between each member.

EVOLUTION AND MATURATION EFFECTS

The fourth objective of this investigation involved examining team behavioral changes that occurred during training. This was done to determine whether the detailed behavioral analyses provided support to the previously posited model of Team Evolution and Maturation (Morgan et al., 1986). An analysis was conducted to identify the possible evolution and maturation effects for the behaviors which significantly correlated with final examination scores. The number of more and less effective teams displaying a behavior across the phases provides an indication of the relative pattern (presence or absence) of the behaviors during training. Table 6 presents the number of more and less effective teams exhibiting each of the correlated behaviors for a particular phase. (For the purposes of Table 6: phase 1 = basic missions, 2 = pre-midterm, 3 = midterm examination, 4 = post-midterm, and 5 = final examination). Phases 1, 2, and 4 are those in which the teams primarily train and practice operational exercises, whereas phases 3 and 5 are primarily testing phases in which the teams receive little guidance from the instructors.

For example, all three of the more effective teams demonstrated the behavior "helped another member who was having difficulty" in the three phases (basic missions, pre-midterm, and final) of training, while only one of the less effective teams displayed the behavior in same three phases.

Table 6

Number of More Effective (ME) and Less Effective (LE)
Teams Exhibiting the Significant Behaviors by Phase

Behavior	Phase of Training									
	1		2		3		4		5	
	ME	LE	ME	LE	ME	LE	ME	LE	ME	LE
Helped another member who was having difficulty with a task.	3	1	3	1	1	0	1	2	3	1
Made positive statements to motivate the team.	2	2	2	0	2	0	2	1	1	1
Assisted another member when the latter had a difficult task to perform.	1	2	3	2	1	1	0	1	2	1
Praised another member for doing well on a task.	3	0	2	1	1	0	1	0	1	0
Made negative comments about the team or training.(I)	0	0	0	0	0	0	0	0	0	1
Suggested to another that he recheck his work so that he could find his own mistake.	2	0	2	0	1	0	1	0	1	0
Raised his voice when correcting another member.(I)	0	0	0	1	0	0	0	0	0	0
Thanked another member for catching his mistake.	3	2	2	0	1	0	1	0	3	0
Coordinated gathering of information in an effective manner.	2	2	3	2	1	0	3	1	2	1
Provided suggestions on the best way to locate a error.	0	0	2	0	1	0	1	1	1	0

I = Ineffective behaviors; the remainder were effective behaviors.

The fifth objective involved the use of the behavioral analyses to develop indicators of a team's potential for success. One method of identifying behavioral indicators of team performance could utilize the evolution and maturation data in Table 6. In terms of the evolution and maturation of team behaviors during training, it appears that the more effective teams display more of the effective team behaviors at the beginning of training even though both more and less effective teams begin training by displaying similar types of behaviors. However, as training progresses, only the more effective teams continue to demonstrate the effective behaviors. As training becomes more complex and requires more interdependency between members, the less effective teams do not continue to display the effective behaviors.

Several of the behaviors will be discussed to further illustrate the evolution and maturation effects during training. The first behavior involves members "helping another member who was having difficulty with a task." During the first, second, and fifth phases of training all three of the effective teams exhibited this behavior; while in comparison, only one of the less effective teams exhibited the behavior in the first, second, or fifth phases. This result suggests that more effective teams more actively assist each other when a member is experiencing difficulty with a task.

A second behavior involves members "praising another member for doing well on a task." The more effective teams were observed performing this behavior during all five phases of training. In contrast, less effective teams were never observed exhibiting this behavior. Since the number of teams exhibiting this behavior decreased as training progressed, it is possible that once team members are praised and receive feedback on their performance the need for additional praise may be reduced. In contrast, less effective teams were never observed exhibiting this behavior. Another behavior dealing with reinforcement and praise involves members "thanking another member for catching mistakes." Although both types of teams exhibited this behavior early in training, only the more effective teams continued to demonstrate this behavior in the remaining phases.

Two behaviors clearly involve the identification and resolution of errors and mistakes. The behaviors are: members "suggesting to another that he recheck his work so that he could find his own mistake" and members "providing suggestions on the best way to locate an error." The first behavior was exhibited by two more effective teams in the first two phases of training, and was only displayed by one of the teams during the remaining phases. In comparison, the less effective teams never exhibited this behavior. The second behavior was not demonstrated by either more or less effective teams in the first phase, however,

the more effective teams started performing the behavior in the second phase of training; whereas the less effective teams began to display the behavior in the fourth phase of training.

The behavior "provided suggestions on the best way to locate an error" may serve as an example of a behavior that evolves during the training, in that it wasn't exhibited in the first phase but was observed in the later phases. The nature of this behavior requires that the members understand the tasks well enough to provide procedures or ideas to locate errors for other members.

SIGNIFICANT BEHAVIORS BY TEAM POSITION

Analyses were conducted to determine the differences that exist between the more and less effective teams in terms of which members of the team initiated the significant behaviors. The team members that were investigated included the formal and informal leaders of the team (Gunnery Liaison Officer - GLO, Assistant Gunnery Liaison Officer - AGLO, and Combat Information Center Supervisor - CIC Sup) and the remaining members of the team. Table 7 presents the frequencies and percentages of the significant behaviors by team position.

The GLOs in the more effective teams initiated the largest percentage of leader behaviors, whereas the AGLOs initiated the largest percentage of the leader behaviors for the less effective teams. Since the formal leader of the Combat Information Center is the GLO, it is expected that he would initiate the largest percentage of the behaviors determined to be critical. Although this is the case for the more effective teams, it was not the case for the less effective teams. In summary, the designated formal leader (GLO) of effective teams is clearly the leader who displays the significant behaviors, whereas in less effective teams a different leader performs this function. This situation may create internal problems regarding the authority figure and leader of the team in operational settings if the formal leader doesn't take an active role during training.

The other team members in the more effective teams initiated almost twice the percentage of the significant behaviors as the members of the less effective teams. In fact, over half of the significant behaviors were initiated by team members other than the three leaders. This suggests that the other members of effective teams are actively involved in initiating the behaviors that are related to performance, and in comparison the other members of the less effective teams are less actively involved in performing these behaviors.

DISCRIMINATORY ANALYSIS FOR THE CORRELATED BEHAVIORS

The previously discussed correlations demonstrate that relationships exist between the frequency of the specific behaviors and subsequent success during the final examination. However, the correlations do not allow useful differentiation between the more and less effective teams. In order to develop a

Table 7

Frequencies (and Percentages) of Critical Significant Behaviors Initiated by Team Positions

Team	Position				Total
	GLO	AGLO	CIC Sup	Other Members	
More Effective Teams	17 (20.8)	6 (7.3)	14 (17.1)	45 (54.9)	82 (100.0)
Less Effective Teams	4 (8.9)	18 (40.0)	16 (35.6)	7 (15.6)	45 (100.0)

clearer picture of the behaviors that distinguish these two types of teams, t-tests were conducted using the correlated behaviors for subsamples of the three teams with the highest final examination scores and the three teams with the lowest final examination scores. A significant t-test indicates that the frequencies of the behaviors displayed by the two subsamples of teams were disparate to a large enough degree to discriminate between more and less effective teams. The results of the t-tests for the 10 correlated behaviors are summarized in Table 8.

The t-tests indicate that four of the ten behaviors distinguish between the two subsamples. These behaviors make it possible to identify more effective teams from less effective teams during training based on the frequencies with which the behaviors are displayed. Although the remaining six behaviors do not discriminate between the more and less effective teams, it should be noted that these behaviors are related to successful performance since they were exhibited by all teams successfully completing training at approximately the same frequency.

The behaviors that discriminate between more and less effective teams are representative of three types of team skills. These are: (1) procedures for the identification and resolution of errors (suggested to another that he recheck his work so that he could find his own mistake, provided suggestions on the best

Table 8

T-test Results for Significantly Correlated Behaviors
Between More Effective and Less Effective Teams

Behaviors	T-test ratio
Helped another member who was having difficulty with a task.	.73
Made positive statements to motivate the team.	1.18
Assisted another member when the latter had a difficult task to perform.	.45
Praised another member for doing well on a task.	4.16*
Made negative comments about the team or training. (I)	-2.00
Suggested to another that he recheck his work so that he could find his own mistake.	4.95*
Paired his voice when correcting another member. (I)	-2.00
Thanked another member for catching his mistake.	3.05*
Coordinated gathering of information in an effective manner.	1.39
Provided suggestions on the best way to locate an error.	2.50*

* $p < .05$

N = 6

I = Ineffective Behaviors, the remainder were effective behaviors.

way to locate an error); (2) indicators of effective information coordination (coordinated gathering of information in an effective manner); and (3) methods of providing reinforcement between team members (praised another member for doing well on a task, thanked another member for catching his mistake).

The sixth objective of this investigation was to begin to define teamwork in terms of the pattern of interactive/communication exhibited by successful teams. The results gleaned from the analyses discussed previously provide a

preliminary basis for proposing a behavioral definition of teamwork. This definition will be described in the discussion section of this report.

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DISCUSSION

As stated in the introduction of this report, the purpose of this research effort was to extend the results of the behavioral analyses conducted by Glickman, et al. (1987). This investigation represents a microscopic and fine-grained analysis of the specific behaviors that constitute the behavioral dimensions investigated in the previous research.

This section of the report will focus on the findings that appear to contribute most to the understanding of Naval tactical teams during training. Specifically, this discussion will (a) summarize the findings relevant to the original research questions; (b) briefly explain potential applications of the findings in terms of training interventions and research methodology; and (c) identify issues and limitations of the findings.

SUMMARY OF FINDINGS

This section addresses each of the questions posed in the introduction of this report:

- (1) Do successful teams demonstrate a specific set of behaviors that are related to performance during training?

Based on the bivariate correlational analyses, a number of specific behaviors were found to be related to successful performance on the final examination (see Table 4). Therefore, it is possible to identify team behaviors that are frequently observed during effective team performance in training. The results suggest that members of successful teams monitor performance, provide and ask for assistance when it is required, and promote team spirit.

- (2) Do more effective and less effective teams display different types of specific behaviors during training?

Based on t-tests performed on behaviors related to final examination scores, several behaviors were found to significantly discriminate between more and less effective teams. Although successful teams in training display a variety of similar behaviors (see the preceding question), there is a significant difference for the frequencies of several of those behaviors which accurately discriminate between more and less successful teams.

Furthermore, the percentages of behaviors initiated by the team leaders and team members of the more effective teams were different from those for less effective teams. These

results suggest that the teams differ in terms of which team members initiate behaviors critical to team performance.

(3) Can the behavioral profiles developed by Glickman, et al. (1987; Morgan et al., 1986) be enhanced by identifying specific behaviors associated with successful performance?

The behavioral profiles for teams in the previous investigations were based primarily at the dimensional level, whereas this report focused on specific behaviors found within the dimensions. The results of this report do enhance the behavioral profiles developed in the previous investigation, in that the behaviors identified in this study provide more information regarding the specific behavioral components of the team dimensions discussed by Glickman, et al. (1987; Morgan, et al., 1986).

(4) What support does the detailed behavioral analyses provide for the previously posited model of Team Evolution and Maturation (TEAM) developed by Morgan, et al. (1986)?

The results of the analyses conducted in this investigation indicate that the behaviors exhibited by the teams do change in terms of frequency and type across training. Although the evolution of behaviors was not directly observed, the more effective teams did demonstrate a "more mature" (e.g., stable and complete) set of team behaviors, than did the less effective teams. The behaviors identified in this investigation provide additional understanding of the specific processes that occur during Team Evolution and Maturation.

(5) Can the results of the behavioral analyses be used to develop indicators of a team's potential for success during training?

The results of the behavioral analyses suggest that teamwork behaviors were displayed by both the more and less effective teams early in training. However, as training progressed and became more complex the less effective teams did not sustain the teamwork behaviors. This suggests that team performance might be more a function of the continual display of teamwork behaviors rather than the emergence or disappearance of various behaviors. Thus, the results of this investigation suggest that the existence and maintenance of teamwork skills can be used to begin to develop indicators of subsequent team performance.

(6) Can teamwork be defined in terms of the pattern of interactive/communication behaviors exhibited by successful teams?

The results of this investigation begin to provide the information necessary to define teamwork. Based on these preliminary results, teamwork can be defined as a team's ability to exhibit team behaviors relevant to task performance in changing environments. These team behaviors include: identification and resolution of errors; coordinated information exchange; and team reinforcement.

Identification and resolution of errors is defined in terms of behaviors oriented toward the detection, acknowledgement and correction of errors. Successful teams actively located errors, questioned improper procedures, and monitored the status of others.

Coordinated information exchange is defined by behaviors involving the effectiveness of intrateam and interteam communication (i.e., accuracy, appropriateness, timeliness, clarity). Teams that were successful in training requested clarification of information and procedures, coordinated information effectively, and had information ready when required or requested.

Behavioral reinforcement is defined by behaviors related to motivational and reinforcing statements made between the team members. Teams that were successful in training praised each other for doing well on a task, made positive statements to motivate each other, and thanked another member for catching mistakes.

The behavioral dimensions identified above are not unique to this investigation. Boguslaw and Porter (1962) suggested that the analysis of one's own errors as well as teammate errors is an important aspect of team functioning. Siskel and Flexman (1962) defined coordination as the ability of team members to work together, anticipate each other's needs to inspire confidence and mutual encouragement, and to communicate effectively. Sorenson (1971) identified relationships between dimensions (i.e., evaluating, requesting, structuring, generating, and elaborating) of group behavior and task performance. Bass (1977) stated that behaviors that involve goal setting, information sharing, and consulting with others as being necessary for group effectiveness. Finally, Nieva et al. (1978) proposed team functions involving: orienting, organizing, adapting, and motivating.

IMPLICATIONS & FUTURE RESEARCH

Based on the results of this investigation training interventions for tactical teams should emphasize skills in error detection and resolution, communication protocols and procedures, and performance feedback and reinforcement. These interventions could be used in training teams, where high levels of interdependency is required between members, especially in unpredictable environments and during complex missions. The results of this investigation emphasize the need for training and reinforcing effective coordination and communication skills in tactical teams.

The findings reported here provide input into the development of future team training systems and improvement of existing instructional technology and training interventions. For example, the identification of specific team behaviors that are consistent with the critical dimensions discussed here could aid in the development of an instructor behavioral assessment device or a computer-aided assessment/feedback package (see Andrews & Uliano, 1985). Either of these devices could be used by instructors as indicators of the development of effective teamwork within teams during training.

One advantage of this investigation was the operational setting in which it was conducted. Although the nature of the setting did provide an opportunity to observe teams in a unique manner, some constraints (i.e., low number of teams) also existed. Future research is needed to replicate these findings to other team and operational settings.

Although the recording device (e.g., CTBF) included requests for criticality ratings of the behaviors, few instructors completed this portion of the rating form. Since there was a lack of available data concerning behavioral criticality, it was decided not to address the issue of criticality in this report. Instead, the procedures used in this study focused on the frequencies of the behaviors observed during training. While the relative frequencies of the behaviors do provide important information about team performance, frequency data do not provide any indication about the relative criticality of the behaviors. For example, a behavior that is critical to team performance might only be required one time during the course of a particular exercise. In an effort to understand better the nature of teamwork skills, future development efforts need to ensure the collection of both frequency and criticality data.

CONCLUSIONS

The ultimate goal of the Team Evolution and Maturation research is to enhance the design of future training systems by providing (a) a greater understanding of the team interaction and performance process variables that contribute to the improvement of team performance during training, and (b) a sound basis for the development of interventions that will enhance training in a variety of Navy team training systems.

The findings of this effort begin to provide detailed behavioral information about successful Navy tactical teams in training. The behavioral information can be used to aid in the development of team training interventions. Although the results are encouraging, additional team research is clearly needed to understand more fully the complex interactions involved in team performance in different tasks and under different situational conditions.

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COORDINATION

The information derived from this effort was discussed with Dr. Dee Andrews (AV 474-6561) of the Air Force Human Resource Laboratory (AFHRL) at Williams AFB. AFHRL is currently investigating the relative effectiveness of training multi-ship combat team in a simulated heavily threat-infested environment.

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APPENDIX A
Critical Team Behaviors Form

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Date _____

Ship Name _____

Day _____

Exercise Name _____

Session _____

INSTRUCTIONS

During the last set of exercises that you observed, did you see any of these things happen that significantly affected work outcomes? If so, please

(1) X the positions of the team members who were involved; and

(2) Circle the X of the individual(s) who did what you marked.

NOTE: INS = Instructor; EXT = External (e.g., Spotter, Bridge, etc.)

In the first column marked "Impact" please indicate the number representing the level of impact that each of these incidents had on the team's performance using the scale at the top of each page. (1 = No Impact; 2 = Some Impact; and 3 = Major Impact).

In the last column on the sheets for Communication and Cooperation, please indicate the frequency with which the team member performed each item by indicating the appropriate number (1 = Rarely; 2 = Sometimes; 3 = Regularly; and 4 = Consistently). For example, if a team member communicated information out of order 60% of the time, you would put a three (3) in the blank beneath the column marked "Frequency."

Important events which happen infrequently are listed on the page entitled "Infrequent Incidents." Please read and become familiar with these items. It is only necessary to consider this page when a listed item has occurred.

Finally, the last page is reserved for any additional incidents that you observe that do not appear elsewhere. This page differs from the previous pages because it is necessary to write the incidents in the blanks.

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<u>Dimension</u>	<u>Page</u>
Communication	1
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Giving Suggestions or Criticism	4
Acceptance of Suggestions or Criticism	5
Coordination	6
Adaptability	7
Infrequent Incidents	8
Additional Incidents	9

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COMMUNICATION

- 1 = No Impact
2 = Some Impact
3 = Major Impact

- 1 = Rarely (0 -25%)
2 = Sometimes (26-50%)
3 = Regularly (51-75%)
4 = Consistently (76-100%)

	IMPACT (1, 2, 3)	GLO	A GLO	CIC SUP	NAV PLT	TAR PLT	R/T TAL	R/T REC	NAV REC	INS	EXT	FREQUENCY (1, 2, 3, 4)
1. Lowered his voice and mumbled when communicating information to other team members.	---	---	---	---	---	---	---	---	---	---	---	---
2. Communicated information out of order.	---	---	---	---	---	---	---	---	---	---	---	---
3. Added his own comments to the prescribed commands, thereby wasting time.	---	---	---	---	---	---	---	---	---	---	---	---
4. Used improper terminology when communicating information.	---	---	---	---	---	---	---	---	---	---	---	---
5. Failed to ask for clarification on a communication that was unclear.	---	---	---	---	---	---	---	---	---	---	---	---
6. Asked for specific clarification on a communication that was unclear.	---	---	---	---	---	---	---	---	---	---	---	---
7. Members were talking among themselves and missed a communication.	---	---	---	---	---	---	---	---	---	---	---	---

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COOPERATION

1 = No Impact
2 = Some Impact
3 = Major Impact

1 = Rarely (0-25%)
2 = Sometimes (26-50)
3 = Regularly (51-75)
4 = Consistently (76-100)

	IMPACT (1,2,3)	GLO	A GLO	CIC SUP	NAV PLT	TAR PLT	R/T TAL	R/T REC	NAV REC	INS	EXT	FREQUENC (1,2,3,4)
1. Checked with other team members when uncertain about what to do next.	---	---	---	---	---	---	---	---	---	---	---	---
2. Helped another member who was having difficulty with a task.	---	---	---	---	---	---	---	---	---	---	---	---
3. Prompted another member on what he had to do next.	---	---	---	---	---	---	---	---	---	---	---	---
4. Gave suggestions on how to do a task.	---	---	---	---	---	---	---	---	---	---	---	---
5. Member who needed assistance asked for help.	---	---	---	---	---	---	---	---	---	---	---	---
6. Tried to push another member out of the way and do his job for him.	---	---	---	---	---	---	---	---	---	---	---	---
7. To help another member, performed a task that was not part of his job.	---	---	---	---	---	---	---	---	---	---	---	---
8. Was uncertain what to do next and failed to ask for help.	---	---	---	---	---	---	---	---	---	---	---	---

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1 - No Impact

2 - Some Impact

3 - Major Impact

TEAM SPIRIT AND MORALE

	IMPACT (1,2,3)	GLO	A GLO	CIC SUP	NAV PLT	TAR PLT	R/T TAL	R/T REC	NAV REC	INS	EXT
1. Made positive statements to motivate the team.	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----
2. Patted another member on the back.	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----
3. Assisted another member when the latter had a difficult task to perform.	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----
4. Discussed ways of improving team performance.	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----
5. Formed subgroups or cliques.	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----
6. Argued among themselves.	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----
7. Praised another member for doing well on a task.	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----
8. Made negative comments or blamed another member for the failure of the team.	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----
9. Made a joke to lighten the tension.	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----
10. Allowed personality conflicts to interfere with work.	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----
11. Made negative comments about the team or training.	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----
12. Provided moral support to a member who had made a mistake.	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----

GIVING SUGGESTIONS OR CRITICISM

1 - No Impact

2 - Some Impact

3 - Major Impact

	IMPACT (1,2,3)	GLO	A GLO	CIC SUP	NAV PLT	TAR PLT	R/T TAL	R/T REC	NAV REC	INS	EXT
1. Raised question about incorrect procedure used by a senior member of the team.	---	---	---	---	---	---	---	---	---	---	---
2. Called attention to a mistake made by another member without being negative.	---	---	---	---	---	---	---	---	---	---	---
3. Noticed a mistake and did not mention it.	---	---	---	---	---	---	---	---	---	---	---
4. Asked if the procedure or information was correct when he wasn't sure.	---	---	---	---	---	---	---	---	---	---	---
5. Suggested to another member that he recheck his work so that he could find his own mistake.	---	---	---	---	---	---	---	---	---	---	---
6. Gave unsolicited and unnecessary advice to another member.	---	---	---	---	---	---	---	---	---	---	---
7. Raised his voice when correcting another member.	---	---	---	---	---	---	---	---	---	---	---
8. Verbally reprimanded another member when this was necessary.	---	---	---	---	---	---	---	---	---	---	---

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ACCEPTANCE OF SUGGESTIONS OR CRITICISM

1 - No Impact

2 - Some Impact

3 - Major Impact

	IMPACT (1,2,3)	GLO	A GLO	CIC SUP	NAV PLT	TAB PLT	R/T TAL	R/T REC	NAV REC	INS	EXT
1. Asked what he had done wrong when told that he had made a mistake.	---	---	---	---	---	---	---	---	---	---	---
2. Told other members to worry about their own jobs and let him alone.	---	---	---	---	---	---	---	---	---	---	---
3. Argued with another member who said he had made a mistake.	---	---	---	---	---	---	---	---	---	---	---
4. Tried to cover up his own mistake.	---	---	---	---	---	---	---	---	---	---	---
5. Thanked another member for catching his mistake.	---	---	---	---	---	---	---	---	---	---	---
6. Became hostile or defensive when criticized.	---	---	---	---	---	---	---	---	---	---	---

COORDINATION

1 - No Impact

2 - Some Impact

3 - Major Impact

	IMPACT (1,2,3)	GLO	A GLO	CIC SUP	NAV PLT	TAB PLT	R/T TAL	R/T REC	NAV REC	INS	EXT
1. When finished one task, member began working on another task.											
2. Coordinated gathering of required information in an effective manner.											
3. Was not ready with information when another member needed it.											
4. Provided information that was needed before being asked for it.											
5. Was ready with information when other members needed it.											
6. Directed members on what to do next.											
7. Indicated that he was finished with a task before he really was so that he could beat the clock.											
8. When not busy with his job, watched what the other members of the team were doing.											
9. When serving as a backup for another member, confirmed information without checking it.											
10. Attempted to determine the cause of discrepant information before going on.											
11. Failed to provide information unless asked.											

ADAPTABILITY

1 - No Impact

2 - Some Impact

3 - Major Impact

	IMPACT (1,2,3)	GLO	A GLO	CIC SUP	NAV PLT	TAR PLT	R/T TAL	R/T REC	NAV REC	INS	EXT
1. Member was unable to adapt to information provided out of order.	---	---	---	---	---	---	---	---	---	---	---
2. Performed a task outside of his job because the team needed to have the work done.	---	---	---	---	---	---	---	---	---	---	---
3. Changed the way he performed a task when asked to do so.	---	---	---	---	---	---	---	---	---	---	---
4. Made no attempt to recover missed information.	---	---	---	---	---	---	---	---	---	---	---
5. Member was able to adapt to information provided in the wrong order.	---	---	---	---	---	---	---	---	---	---	---
6. Made sure he had all of the information required to complete his job.	---	---	---	---	---	---	---	---	---	---	---
7. Provided suggestions on the best way to locate an error.	---	---	---	---	---	---	---	---	---	---	---
8. Refused to change the way he did a task even though he was doing it wrong.	---	---	---	---	---	---	---	---	---	---	---

INFREQUENT INCIDENTS

1 - No Impact

2 - Some Impact

3 - Major Impact

	IMPACT (1,2,3)	GLO	A GLO	CIC SUP	NAV PLT	TAR PLT	R/T TAL	R/T REC	NAV REC	INS	EXT
1. Gave a different interpretation to information provided by another member because of errors previously made by that member.											
2. Indicated that he knows his job and shouldn't have to worry about someone else's job.											
3. Failed to assist another member who was having difficulty and let him fail.											
4. Member became overloaded and failed to ask for assistance.											
5. Wrote down notes for another team member on the performance of the latter's job.											
6. While waiting for information from another member, began to harass the other member.											
7. Ridiculed a member who had made a mistake.											
8. Tried to cover up a mistake made by another member.											

ADDITIONAL INCIDENTS

1 - No Impact

2 - Some Impact

3 - Major Impact

	IMPACT (1,2,3)	GLO	A GLO	CIC SUP	NAV PLT	TAR PLT	R/T TAL	R/T REC	NAV REC	INS	EXT
1.											
2.											
3.											
4.											
5.											
6.											
7.											
8.											

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